



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,585	02/13/2001	Malcolm James Grieve	DP-302896	9475

7590 09/30/2004

VINCENT A. CICHOSZ
DELPHI TECHNOLOGIES, INC.
Legal Staff, Mail Code: 480-414-420
P.O. Box 5052
Troy, MI 48007-5052

EXAMINER

PATEL, VINIT H

ART UNIT PAPER NUMBER

1764

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/782,585	Applicant(s) GRIEVE, MALCOLM JAMES	
	Examiner Vinit H. Patel	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 12-15 and 17-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) 1-19 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20 February 2004; 24 Nov 2003; 13 Feb 2001</u> | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-11 and 16, drawn to a temperature/reaction management system, classified in class 429, subclass 19.
 - II. Claims 12-15 and 17-19, drawn to a method of managing temperature and reaction in an energy conversion device, classified in class 48, subclass 127.9.

Invention I is an apparatus directed to a temperature/reaction management system. Invention II is a method for managing temperature and reaction in an energy conversion device. The inventions of I and II are an apparatus and method that may be used separately. In this case, the invention of I may be used as a temperature/reaction management system and as well as a gas filtration apparatus, however the invention of II may primarily be used only as a temperature management method.

Because the inventions are distinct for the reasons above and have acquired separate status in the art as shown by their different classification and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Pamela Curbelo, Esq. on September 20, 2004, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11 and 16. Affirmation of this election must be made by applicant in replying to this Office action. Group II claims 12-15 and 17-19 are withdrawn from further

Art Unit: 1764

consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

Applicant is advised that should claim 3 be found allowable, claim 5 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 11 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Kneidel, U.S. Patent No. 6,326,095.

Regarding claims 1 and 16, Kneidel discloses an integrated manifold/reformer 5. Gas 14, an unreformed mixture of natural gas and steam, flows from an inlet passing

Art Unit: 1764

through a screen 15 through a bed of catalyst 13 where it is reformed into reformed fuel gas 17 (See Fig. 3; Col. 4, lines 15-25).

Regarding claim 11, Kneidel further discloses that a fuel gas catalyst in the manifold enclosure and bounded by the screen means (See Fig. 3; Col. 2, lines 62-66).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Kneidel as applied to claim 1 above, and further in view of Gifford, U.S Patent No. 4,444,109.

Regarding claim 2, Kneidel discloses all of the limitations of claim 1 as set forth above. Kneidel does not disclose a flame arrestor coupled to said mat material. Gifford discloses a flame arrestor device utilized for checking upstream flashback of fuels and oxidizer gases under pressure, the arrestor comprising an arrestor housing having an entry port and downstream exit port (See claim 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kneidel to include the flame arrestor device of Gifford, for the purpose of providing a durable flame arrestor device that is adapted for repeated usage in various systems utilizing gases (for example, a reformer) to prevent upstream flashback of fuels (See Col. 1, lines 30-35 of Gifford).

Art Unit: 1764

4. Claim 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kneidel as applied to claim 1 above, and in further view of Farooque et al., U.S. Patent No. 5,175,062.

Regarding claims 3 and 5, Kneidel discloses all of the limitations of claim 1 as set forth above. Kneidel does not disclose an inert material coupled to said mat material. Farooque et al. discloses a reforming unit 7A, with regions immediately adjacent the fuel inlet 7-12 packed with an inert material 7-16. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kneidel to include the inert material of Farooque et al., for the purpose to provide a barrier to catalyst materials from these areas and thereby limiting reforming reactions (See Col. 4, lines 12-24).

5. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Kneidel as applied to claim 1 above, in view of Gifford, and further in view of Farooque et al.

Regarding claim 4, Kneidel discloses all of the limitations of claim 1. Kneidel does not disclose an inert material coupled to a flame arrestor. Gifford discloses a flame arrestor device utilized for checking upstream flashback of fuels and oxidizer gases under pressure, the arrestor comprising an arrestor housing having an entry port and downstream exit port. Farooque et al. discloses a reforming unit 7A, with regions immediately adjacent the fuel inlet 7-12 packed with an inert material 7-16. It would have been obvious to one of ordinary skill in the art to modify Kneidel with the flame arrestor of Gifford for the purpose of providing a durable flame arrestor device that is adapted for repeated usage in various systems utilizing gases (for example, a reformer) to prevent upstream flashback of fuels (See Col. 1, lines 30-35 of Gifford) and further

Art Unit: 1764

modify Kneidel with the inert material of Farooque et al. for providing a barrier to catalyst materials and thereby limiting reforming reactions (See Col. 4, lines 12-24).

6. Claims 6 and 7 are rejected under 103(a) as being unpatentable over Kneidel as applied to claim 1 above, and in view of Wu, U.S. Patent No. 5,342,434.

Regarding claim 6, Kneidel discloses all of the limitations of claim 1. Kneidel does not disclose the mat material is woven, mesh fibrous, cloth and paper like and combinations of the foregoing. Wu discloses a gas permeable material that can be fabric such as non-woven, woven, made of paper, cloth or metal mesh (See Col. 2, lines 26-30). It would have been obvious to one skilled in the art at the time of the invention to modify the screen 15 (mat material) of Kneidel to use the material disclosed in Wu, for the purpose of using such materials as gas filters in uses involving engines (See Col. 1, 27-29).

Regarding claim 7, Wu further discloses that the material comprises continuous passageways through the thickness thereof (See Col. 2, lines 13-15). One skilled in the art would understand that continuous passageways through the material would demonstrate the use of a plurality of layers of the material to prepare such passageways.

7. Claims 8-10 are rejected under 103(a) as being unpatentable over Kneidel, in view of Wu, U.S. Patent No. 5,342,434 as applied to claim 7 above, and further in view of Keidel et al., U.S. Patent No. 4,894,070 ('070).

Regarding claim 8, Kneidel and Wu disclose all of the limitations of claim 7. The references do not disclose a plurality of layers held together using binder wherein the

Art Unit: 1764

binder comprises a binder selected from a sealing agent, adhesive, ceramic substance and combinations of at least one thereof. Keidel et al. '070, discloses binder for use in the filtration of fluid media characterized in that an elongate tubular filter is formed from a plurality of shorter tubular portions bonded together by a high-temperature adhesive (See Col. 1, lines 65-69 and Col. 2, lines 1-3). Further disclosed is that the binder may be any of those known for their suitability for bonding ceramic fibers or organic binders such as natural and synthetic resins (See Col. 2, lines 33-39). It would have been obvious to one of ordinary skill in the art to modify the combination of Keidel and Wu with the binder disclosed in Keidel et al. '070, for the purpose to support filtering the hot gaseous and fluid mixture prior to reforming (See Col.1, lines 6-9) and to bond several layers of filter material in series.

Regarding claim 9, Keidel et al.'070 discloses a filter made of ceramic material. It is a generally accepted standard in the art that a ceramic material would have a reflective surface (see for example, Andrus et al., U.S. Patent No. 3,926,602).

Regarding claim 10, Keidel et al. '070 discloses a filter made of ceramic material. It is a generally accepted standard in the art that a ceramic material would have a white, opaque material characteristic (see for example, Andrus et al., U.S. Patent No. 3,926,602).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinit H. Patel whose telephone number is (571) 272-

Art Unit: 1764

0856. The examiner can normally be reached Monday – Friday from 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached at (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Vinit H. Patel
September 27, 2004



Alexa Doroshenko
Patent Examiner
Art Unit 1764